## ABSTRACT OF THE DISCLOSURE

A method and apparatus for decomposing timing jitter on arbitrary serial data sequences. Specifically, in one embodiment according to the present invention, a method is provided of decomposing timing jitter on a signal under test (SUT) comprising an arbitrary serial data stream. The method comprises performing a statistical analysis on a group of measurements, where each measurement comprises a timing jitter value and an associated bit pattern representing the bits falling within an analysis window, said window being successively located at a plurality of positions within the data stream.